



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,634	07/31/2003	Michael A. Pate	200209409-1	2770

22879 7590 09/22/2005

HEWLETT PACKARD COMPANY  
P O BOX 272400, 3404 E. HARMONY ROAD  
INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER
----------

CRUZ, MAGDA

ART UNIT	PAPER NUMBER
----------	--------------

2851

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/632,634

Applicant(s)

PATE ET AL.

Examiner

Magda Cruz

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7, 9-14, 38-40 and 42-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-12 and 42-45 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 13, 14 and 38-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 7, 13-14, 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiser et al. in view of Levitt et al.

Kiser et al. (US 2003/0228154 A1) discloses:

- Regarding claim 1, display device (Figure 1, element 5) comprising: a spatial light modulator (Figure 1, element 200) having an array of modulating elements (page 3, paragraph 0055, lines 1-2) forming a plurality of image regions (see detail of element 200, Figure 2, elements 210a, 210b, 210c); a light generator (Figure 1, element 120) configured to direct a different one of a plurality of light bands (R, G, B) onto each of the plurality of image regions (Figure 1, element 132).
- Regarding claim 2, the plurality of light bands (R, G, B) includes at least one of a red light band, a green light band, and a blue light band (page 4, paragraph 0055, lines 5-7).
- Regarding claim 3, the light generator (Figure 1, element 120) is configured to direct the plurality of bands of light (R, G, B) onto image

regions (see detail of element 200, Figure 2, elements 210a, 210b, 210c) having at least one aligned edge (i.e. border of elements 210a, 210b, 210c).

- Regarding claim 4, the image regions (Figure 2, elements 210a, 210b, 210c) are of the same size (see Figure 2).
- Regarding claim 5, the array of modulating elements (Figure 5, elements 520a, 520b, 520c) has a generally rectangular shape with adjacent sides having relative sizes (see Figure 5), and the image regions (Figure 5, elements 510a, 510b, 510c, 510d) have generally rectangular shapes (see Figure 5) with adjacent sides having relative sizes different than the relative sizes of the array of modulating elements (Figure 5, elements 520a, 520b, 520c). This refers to the embodiment disclosed on page 6, paragraph 0069, which also meets the limitations of the claims that claim 5 is dependent upon.
- Regarding claim 7, the light bands (Figure 1, element 122) are of different colors (R, G, B), and the controller (Figure 1, element 140) is configured to control modulation of the spatial light modulator (Figure 1, element 200) appropriate to produce differently colored component images (Figure 1, element 202) of a composite image (page 4, paragraph 0061, lines 1-12).
- Regarding claim 13, a display device (Figure 1, element 5) comprising a light source (Figure 1, element 110) configured to produce multi-spectral light (Figure 1, element 112); a spatial light modulator (Figure 1, element

Art Unit: 2851

200) configured to modulate light received in a plurality of regions according to component images of a received composite image (page 3, paragraph 0055); an optical separator (Figure 1, element 120) configured to separate multi-spectral light (Figure 1, element 112) into a plurality of colored light bands (Figure 1, element 122), and to direct the light bands (Figure 1, element 122) onto the regions (Figure 1, element 210a, 210b, 210c) of the spatial light modulator (Figure 1, element 200); an optical combiner (Figure 1, element 130) configured to combine the modulated light bands (Figure 1, element 202) into a composite light band (Figure 1, element 132).

- Regarding claim 14, the projection optics (page 3, paragraph 0052, lines 1-7) is configured to direct the composite light band toward a display medium (Figure 1, element 20).
- Regarding claim 38, a spatial light modulator (Figure 1, element 200) having an array of modulating elements (page 3, paragraph 0055, lines 1-2) configured to spatially modulate incident light (page 3, paragraph 0055, lines 1-5).
- Regarding claim 39, the controller (Figure 1, element 140) is further configured to control modulation of the spatial light modulator (Figure 1, element 200) appropriate to produce a component image (Figure 1, element 202), in each of the plurality of image regions (see detail of

element 200, Figure 2, elements 210a, 210b, 210c), of a received composite image (page 4, paragraphs 0060 and 0061).

- Regarding claim 40, the component images (Figure 1, element 202) correspond images of different colors, and the controller (Figure 1, element 140) is configured to control modulation of the spatial light modulator (Figure 1, element 200) appropriate to produce differently colored component images (R, G, B) that when combined form a composite colored image (Figure 1, element 132).

Kiser et al. teaches the salient features of the present invention as explained above, except (regarding claims 1, 13 and 38) a spatial image separator configured to assign received image information to a corresponding one of the image regions.

Levitt et al. (US Patent Number 6,061,135) discloses a spatial image separator (Figure 4, element 110) configured to assign received image information to a corresponding one of the image regions (column 2, lines 7-10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the spatial image separator disclosed by Levitt et al. in combination with the controller from Kiser et al.'s invention for the purpose of providing a signal processing apparatus that separates and selectively recombines segments of an image.

### ***Allowable Subject Matter***

3. Claims 9-12 and 42-45 are allowed.

***Response to Arguments***

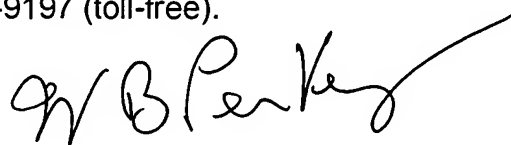
4. Applicant's arguments filed on 06/30/2005 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magda Cruz whose telephone number is (571) 272-2114. The examiner can normally be reached on Monday through Thursday 8:00-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**William Perkey  
Primary Examiner**

Magda Cruz  
Patent Examiner  
September 18, 2005